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CONTENTS

Hardy Japanese Species of Calanthe	37
The Seersucker Plant - Geogenanthus undatus	41
Randia for Southern Gardens	46
Hellanthus salicifolius in cultivation	47
Some Sources of Plant Misnomers	53
Notes on Cultivated Labiates. 3 Origanum	57
Edward A. Bowles [1865-1954]	67

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Notes and short scientific papers relating to the systematics of cultivated plants, and to their history in cultivation or to the literature pertaining to such topics, will be considered for publication to the extent that the limited space of the publication permits. Line illustrations to accompany such papers are invited. Authors of more than two pages of print will receive in recompense, 15 copies of the issue in which their contribution appears. No proof will be submitted to the author and copy is considered in final form as received. Extracted reprints without change in pagination will be provided at cost [approximately $1.75 per page per 100 copies].

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Hardy Japanese Species of Calanthe

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Few members of the orchid family can be seen outdoors in temperate regions such as the greater part of the United States, Europe, and Eastern Asia. Among those that are hardy, however, are some Calanthes growing wild in Japan.

These thrive very well in moderately shaded, moist places under trees, and bear scapes of rich flowers in spring or in summer every year. Flowers are arranged in a raceme at the top of the scape and are variously colored from white to rosy-purple or brownish purple to clear yellow, according to their species and varieties.

Calanthe discolor, the most common representative on the wooded hills and mountain sides of nearly the entire area of Japan from Yezo (Hokkaido) to Kiushiu, is an old favorite in Japanese gardens. Its knotty rootstock lies horizontally underground. The leaves are few and all radical, with deep green, oblong blades about 30 cm. long, narrowed gradually to the stalk-like bases.

The scape, appearing in early May, is about 30 to 50 cm. in height, is surrounded by a fascicle of young half-developed leaves at the base, and bears a raceme of 10 to 20 flowers on its upper half. The flowers are 2 to 3 cm. in diameter, with expanded perianth-segments. The sepals or three outer perianth-segments are narrowly ovate and from purplish green to green in color. The petals or two inner ones are somewhat purple-tinged, and a little smaller than the sepals. The whitish lip is much broader, three-lobed, with three elevated ridges on its inner face, and rather shortly spurred at the base.

Calanthe striata, allied to the above but more showy, is sometimes considered to be a variety of it. This orchid has larger but less expanded flowers. They are clear yellow and very attractive in one variety called forma Sieboldii, but typically the sepals are purplish green.

Calanthe nipponica is a rare species with narrow leaves and narrow, acuminate perianth-segments.

Calanthe Schlechteri, which was until recently identified with a Himalayan species, Calanthe alpina, is also a very rare endemic orchid in Japan. It has acuminate purplish perianth-segments and an undivided, rounded, spotted, pale yellowish lip fringed on the margin.

Fig. 12. A, Calanthe striata: Aa, habit; Ab, labellum. B, Calanthe aristulifera, labellum. C, Calanthe discolor, labellum. D, Calanthe japonica, labellum. E, Calanthe furcata, labellum.

Calanthe reflexa is somewhat like Calanthe discolor in its general appearance, but the flowers are white with a purple shading. The perianth-segments are reflexed and narrowed to the acuminate tip. The labellum is rounded-ovate, not spurred, and abruptly produced into an awn-like apex.

Calanthe tricarinata is known among the Japanese as "Monkey-faced Calanthe" because of its curiously shaped lip. This orchid is allied to the ordinary Japanese species, Calanthe discolor, in the color of its sepals, but is larger, and the lip is thicker, nearly rounded and undivided, with undulate, denticulate edges and three conspicuously cristate ridges on the face.

Calanthe furcata and Calanthe japonica both grow under evergreen forests of the warmer parts of Japan, namely in the southern half of Kiushiu Island, and are less hardy than the preceeding ones. These orchids have scapes which appear among the fascicles of well-developed leaves, with a short but thick raceme of white or rosy flowers in late summer.

The following is a key to the Japanese species of the genus:

1. Bracts caducous, peduncles leafy below, from the lower nodes of the previous year's shoot; flowers relatively small, pale yellow, spur absent. 1. Calanthe venusta Schlechter

1. Bracts persistent, peduncles scapose, radical.

2. Scapes from the midst of young leaves, flowers in elongated, lax racemes.

3. Flowers spurred.

4. Flowers small, yellowish green; sepals fully expanded, about 7 mm. long, spur narrowly cylindric, about 8 mm. long. 2. Calanthe bungoana Ohwi

4. Flowers large, variously colored; sepals 15-30 mm. long.

5. Spur shorter than the sepals: leaves glabrous beneath.

6. Leaves broad-lanceolate: petals linear-lanceolate; bracts lanceolate, 1 1.5 cm. long. 3. Calanthe nipponica Makino

6. Leaves narrowly oblong or oblong: petals spatulate-obovate or narrowly ovate with narrowed base.

7. Central lobe of the lip distinctly bifid; flowers well expanded. 4. Calanthe discolor Lindley

7. Central lobe of the lip entire; flowers larger, but usually not fully expanded. 5. Calanthe striata R. Brown

5. Spur longer than or as long as the sepals.

8. Leaves sparingly pilose beneath: lip 3-lobed, spur 15-18 mm. long; ovary shortly pilose. 6. Calanthe aristulifera Reichenbach f.

8. Leaves glabrous; lip not lobed, but fringed on margin, spur 2-2.3 cm. long; ovary glabrous. 7. Calanthe Schlechteri Hara

3. Flowers without spur.

9. Petals broadly linear, limb of the lip flat, shortly produced at apex. 8. Calanthe reflexa Maximowicz

9. Petals oblong-obovate, limb of the lip with strongly raised lines on the inner face, deeply notched at apex. 9. Calanthe tricarinata Lindley

2. Scapes from the midst of fully developed leaves; flowers in short, thick racemes, spur long and slender: leaves pilose beneath.

10. Leaves narrowly oblong, acuminate at both ends: flowers usually rose-colored, lip with three short, cristate protuberances at the base inside, spur 1.5-2 cm. long. 10. Calanthe furcata Bateman

10. Leaves elliptic, short-acuminate at the apex, rounded at the base: flowers white, lip with a globose, anteriorly 5-fid protuberance at the base inside, spur shorter. 11. Calanthe japonica Blume

[Note: It is the policy of the Editor to introduce readers from time to time to plants not commonly cultivated, but deserving consideration. This article by Dr. Ohwi is of this nature. According to Hortorium records seeds or plants of the following Japanese species of Calanthe have been offered in U.S.A. since 1950: C. discolor, C. striata Sieboldii, and C. nipponica. Material of C. Schlechteri [listed as C. alpina] and C. tricarinata have been offered recently by Japanese sources. Names of these sources are available on request.]

What is Dianthus viscidus?

The answer to this query was given recently by Miss Patricia Rawdon in Kew Bulletin, p. 543-544, 1953. The species is cultivated and an abstract of her findings follows:

Dianthus viscidus was first described and named by Bory and Chaubard in 1838 from material collected in a gorge on Taygetus range of southern Peloponnesus, Greece. It is a small plant, growing to about 1.5 dm. tall, and has 3-4 terminal flowers whose petals are pale lavender and striated dark purple.

Material cultivated under this name differs in being 4-6 dm. tall and bearing 1-5 flowers on each stem. It is Dianthus viscidus var. elatior Halacsy. Typical D. viscidus is not known to be cultivated in America. The name Dianthus tymphresteus Heldreich and Sartori also appears in lists from time to time and is properly a synonym of D. viscidus.

The Seersucker Plant - Geogenanthus undatus

H. E. Moore, Jr.

Among the several representatives of the Spiderwort family (Commelinaceæ) in commerce today, few are more distinctive than Geogenanthus undatus, more often called the Seersucker Plant because the undulating surface of the leaves resembles somewhat the wrinkling of the textile, seersucker. In addition to its common name it has been listed by dealers and is incorrectly mentioned in some horticultural works under the name Dichorisandra musaica var. undata.

Geogenanthus undatus is an excellent foliage plant of dwarf or semi-dwarf habit that lends itself to home conditions as an individual pot plant or as a member of planter-boxes or dish-gardens. The stems are erect at first but well-established plants sucker at the base and the several stems tend to bend at the base, then grow upward at an angle. Like many tropical species, it requires considerable moisture and temperatures above 60° F. A standard mixture of peat and sharp sand, or peat and sandy loam, augmented by addition of fertilizer, serves for potting. Propagation is generally effected by stem-cuttings as the plants apparently do not flower or set seed freely. Plants may be obtained from Julius Roehrs, Rutherford, New Jersey; Fantastic Gardens, 9550 SW 67th Ave., South Miami 43, Florida; Alberts & Merkel Bros., P. O. Box 77, Route 6, South Jacksonville, Florida, and probably other dealers.

The history of the Seersucker Plant itself and that of its botanical name are both of interest. It has been cultivated for nearly a century, having been first introduced by the Belgian horticulturist Linden in the early 1860's. The original material was found in the province of Maynas, Peru, by Linden's collector, a German named Wallis. There it grew in fissures of rocks and at the entrances to caves on the margins of streams that rush headlong from the high Andes into the headwaters of the Amazon River. So unusual were its leaves that, before its flowers were known, the plants were

described and illustrated in "Flore des Serres" 17: 87, t. 1763-1764 (1867-1868), and sent into commerce with the name Dichorisandra undata.

Apparently as late as 1833 its flowers were unknown to C. B. Clarke when he monographed the Commelinaceæ for de Candolle's "Monographiæ Phanerogamarum". There Dichorisandra undata was said to be the same as D. musaica, a species that had been illustrated in "Flore des Serres" 16: 187, t. 1711-1712 (1865-1867). In the treatment of Dichorisandra for Bailey's "Cyclopedia of American Horticulture" Wilhelm Miller mentioned Clarke's union of the two but, because of the distinct horticultural attributes of D. undata, he distinguished it as a variety of D. mosaica.

By 1913, enough was known so that J. Milbraed and H. Strauss, working at the Berlin-Dahlem Botanical Garden in Germany, were able to identify Dichorisandra undata with plants from the Amazon basin previously described as the only species of a new genus, Geogenanthus. They showed that it was different from D. musaica and transferred Dichorisandra undata to Geogenanthus.

Thus we should now distinguish these two very different plants by using their proper names. Dichorisandra musaica may be recognized by its (1) terminal inflorescence of blue-and-white flowers that rises from among the leaves at the top of the stem, (2) six equal stamens that have smooth filaments and long anthers and (3) non-undulant leaves that lack the lengthwise pale stripes of the Seersucker Plant but that have very many pale short bars running

Geogenanthus undatus differs in having (1) a short and inconspicuous inflorescence with bisect flowers that penetrates the leaf-sheaths on the lower nodes of the stem, (2) unequal stamens, 3 of which are hairy, and (3) leaves with an undulating surface and rather broad pale bands running lengthwise along the veins (fig. 00). Because the genus is not listed in most horticultural works, a summary of its characters and those of the single species in cultivation follow.

Geogenanthus Ule, in Fedde Repertorium Specierum Novarum Regni Vegetabilis 11: 524 (1913)

Chamæanthus Ule, in Verhandlungen des Botanischen Vereins Provinz Brandenburg 50: 71 (1908) not Chamæanthus Schlechter (1905).

A genus that presently consists of 3 species of perennial herbs native in the upper reaches of the Amazon river basin in Brazil and Peru. The rootstock is a rhizome sending up unbranched stems that are erect or ascending from an often bent base. A few tubular, bladeless leaf-sheaths are present on the lower nodes and 2-4 short-petiolate leaves with similar sheaths form a compact whorl-like cluster at the tip of the stem. A short, bracted cymose inflorescence with the buds inclined or bent downward breaks through the base of the lowermost sheaths and bears several nearly regular flowers. The 3 sepals are distinct. Petals are distinct and nearly

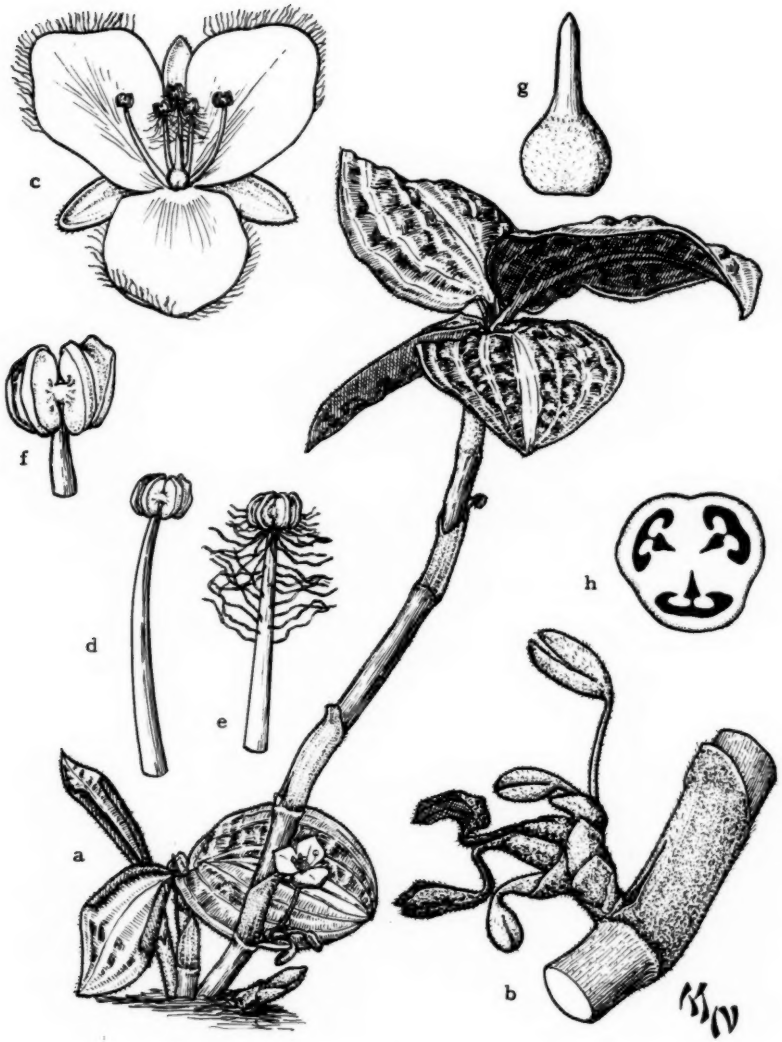

Fig. 13. Geogenanthus undatus: a, plant in flower x 1/2; b, stem with inflorescence and sheath x 1 1/2; c, flower x 2; d, outer stamen x 6; e, inner stamen x 6; f, anther x 12; g, pistil x 9; h, ovary cross-section x 12.

equal, the lower a little longer and broader than the 2 upper. They are deliquescent, lasting only part of a day. Stamens are 5 or 6 and of two sorts, the 3 upper having slender filaments often clothed with numerous curling slender hairs below the semi-lunar anthers, the 2 (or 3) lower longer and with smooth filaments. A trilocular ovary with short style bears 4-6 ovules in 2 rows in each locule. Fruit is a dry 3-valved capsule dehiscing loculicidally with 2-4 angled seeds in each locule.

Geogenanthus ciliatus Brückner and G. rhizanthus (Ule) Brückner, both of Peru, are not cultivated.

Geogenanthus undatus (C. Koch & Linden) Milbraed & Strauss, in Fedde, Repertorium Specierum Novarum Regni Vegetabilis 12: 279 (1913).

Dichorisandra undata C. Koch & Lindeh, in Wochenschrift [Verein zur beförderung des Gardenbaues in den königlich preussischen staaten, Berlin] 9: 346 (1866).

Dichorisandra mosaica C. Koch & Linden var. undata (C. Koch & Linden) W. Miller ex Bailey, Cyclopedia of American Horticulture 1: 480 (1900).

Chamæanthus Wittianus Ule, in Verhandlungen des Botanischen Vereins der Provinz Brandenburg 50: 71 (1908).

Geogenanthus Wittianus (Ule) Ule, in Fedde, Repertorium Specierum Novarum Regni Vegetabilis 11: 524 (1913).

Stems of Geogenanthus undatus are 15 to 25 cm. long, rather succulent and densely covered with minute brownish hairs, the lower 2-3 nodes bearing reddish, tubular, leafless sheaths 18-25 mm. long that are minutely hairy on the outside, ciliate on the margin and often pale-veined and minutely spotted with white. Leaves are ovate in outline with similar sheaths, short petioles, and blades 7-12 cm. long and 5.5-10 cm. wide. The blades are somewhat leathery, densely covered with minute appressed hairs on both sides but appearing smooth except for the ciliate margins. A rich wine-red color on the lower surface contrasts with the dark- to blackish-green strongly undulating upper surface that is striped lengthwise with pale silvery green along the midrib and the 4-5 pairs of lateral veins. Short cymes bearing several flowers appear at the lower nodes or sometimes apparently rise from the ground. The buds are inclined but become erect when the flowers expand. Sepals 7-8 mm. long are covered with brownish hairs. The violet petals are unequal, the two upper about 10 mm. long, 8 mm. wide, the lower 11 mm. long, 9 mm. wide, all with a fringe of slender hairs on the margin. The 3 shorter and hairy stamens are 5 mm. long, the 2 longer and smooth stamens 7 mm. long. The ovate, hairy ovary is 2 mm. long tipped with a slender style 2-3 mm. long. The fruit is a 3-valved, 3-angled capsule about 7 mm. long with 2-3 seeds in each locule. The plant is native in Amazonian Brazil and Peru.

Fig. 14. Dichorisandra musaica.

Randia for Southern Gardens

Gordon P. DeWolf

Fig. 15. Randia macrantha; flowering branch-tip.

Randia, as generally understood, is a pantropical genus of the Rubiaceæ, a very close relative of the Gardenia. The majority of the species appear to be palæotropical, though the type of the genus, R. mitis L., is American.

Several species of Randia deserve to be more widely known and should be considered for culture in warm parts of Florida and California. Particularly is this true of the West African R. macrantha, de Candolle. This is a husky shrub, with climbing tendencies, which, when out of flower, looks very much like the common coffee (Caffea arabica). When in flower, however, this mistake could not be made! The flowers of this species of Randia are tubular, from 15 to 25 cm. long, and are borne singly or in small clusters from the ends of young twigs. They are very fragrant. The flowers open in the evening and persist for several days. On first opening they are a pristine white, with perhaps a few tiny spots of red or purple. With age, they fade to a rich cream-yellow. This shrub grows easily in semi-shaded places, and does best in a soil rich in organic matter.

A similar species is Randia macrophylla, Hooker, fil., of lowland Malaya and Sumatra. This species has the habit of "gregarious" flowering. That is, flower clusters develop to a certain point, then stop and wait for a stimulus, such as the slight drop in temperature produced by a heavy rain storm. Following this, all the bushes in a certain area flower at the same time.

These species are not now known to be available in this country. Seed may be obtained from the Botanic Garden at Singapore. Little or no information is available as to the hardiness of these species, but it is doubtful if they will survive more than 3-5 degrees of frost, at the most.

Helianthus salicifolius in Cultivation

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Among the comparatively few perennial sunflowers that are cultivated as ornamentals is the Willow-leaved Sunflower, Helianthus salicifolius (H. orgyalis DC.). This species is quite distinctive in the genus, having long, narrow, drooping leaves arranged in close approximation along the length of a smooth, glaucous stem (fig. 16). In nature these plants are generally confined to dry, alkaline soil in the central plains of Missouri, Kansas, Nebraska, Oklahoma, Arkansas, and Texas.

This is one of our most unusual sunflowers. The young plants are especially striking, appearing as dense plumes of many leaves that completely obscure the stem. Unlike most of the members of the genus which are characteristically coarse, rough and weedy, H. salicifolius is smooth and delicate. Only in late summer, just before blooming, do the lower leaves tend to wither and fall, giving the plant a more unsightly aspect. The stems grow up to 2.5 m., accentuating the nakedness of the lower portions.

The introduction of the willow-leaved sunflower into cultivation can be traced back to 1832 when seeds were collected in Arkansas by the young Count de Pourtales (not Louis Francois). Pourtales' modus vivendi was not the kind we usually associate with botanical collecting, being "prone to every kind of wild adventure" (cf. Irving 1897). The first record of the plant in cultivation shows it to have been the Geneva gardens of de Candolle. This was the one on which he based his description of H. orgyalis (de Candolle 1836, p. 586). Few seed companies list the species today. No doubt it was used occasionally in perennial borders of the earlier settlers of our Midwest, but its introduction into gardens of the East and the North-central States was later.

The taxonomy is relatively simple, for only three names can be ascribed to the species. Torrey and Gray (1841) listed H. giganteus crinitus Nuttall in synonymy with H. orgyalis; the latter name has been superceded by Dietrich's earlier H. salicifolius.

The closest relatives, morphologically, are H. grosseserratus Martens, H. angustifolius L., H. "Kellermannii," and H. filiformis Small. The first is the large, handsome, Saw-toothed Sunflower

Fig. 16. Helianthus salicifolius: mid-stem with attached leaves and inflorescence, x 3/4.

Fig. 17. Helianthus grosseserratus: mid-stem, leaf, and inflorescence, x 3/4.

and is sometimes cultivated, too (fig. 17.) The range of this species is principally around the Great Lakes, but extends from New York and New England west to Nebraska. Unlike H. salicifolius, H. grosseserratus is found in rich, well-drained loam and thrives in cultivation.

Helianthus angustifolius is sometimes confused with H. salicifolius. De Candolle (l. c.) believed they were the same. They are easily separable by the thicker, stiffish leaves and over-all darker green color of the former.

Cockerell (1929) first suggested that H. "Kellermannii" was not a valid species, but was actually a hybrid between H. grosseserratus and H. salicifolius (fig. 18.) Gleason (1952) first reported H. "Kellermannii" as a hybrid. Experimental evidence will be reported later to confirm this disposition (Long, unpubl.) Evidently H. salicifolius hybridizes with H. grosseserratus when the former is brought into the range of the latter. The two species are highly interfertile even though they are morphologically very dissimilar. The hybrid is vigorous, tall, and leafy and combines the chief morphological features of both parents (see figures). In nature the hybrid is rare and seldom reported. Specimens from the Gray, Indiana, and Michigan State herbaria do not include any natural hybrids other than the type collection, and this was made within the city limits of Columbus, Ohio.

The last-named sunflower, H. filiformis, differs from H. salicifolius principally in having slightly broader leaves, slightly pubescent phyllaries, and shorter stature. From a superficial examination of a number of specimens from various herbaria, it would appear that H. filiformis is also a natural hybrid, probably between H. salicifolius and H. Maximilianii, the scabrous prairie sunflower. These species are sympatric. Experimental evidence and more extensive study are needed to confirm this hypothesis.

The extent and effect of hybridization between H. grosseserratus and H. salicifolius is probably not significant judging from the number of hybrids reported. If any extensive infiltration of genes from the latter does occur by means of backcrossing from occasional hybrids, the effect on the already highly variable Saw-toothed Sunflower could be considerable.

Watson (l.c.) reports that H. salicifolius does not thrive in cultivation and conjectures this is probably due to specific soil demands of the species. From preliminary breeding studies of the species, there is hope for breeding a hardier, many-flowered willow-leaved sunflower by incorporating the edaphic toleration of H. grosseserratus and the blooming profusion of H. Maximilianii. The ease of interbreeding among several perennial sunflowers suggests that it might not be difficult to produce several varieties of highly desirable sunflowers for cultivation (cf. Long 1951).

Fig. 18. Helianthus salicifolius x H. grosseserratus: mid-stem, leaf, and inflorescence, x 3/4.

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Irving, Washington. (1897) A Tour of the Prairies. New York.

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FOR THE AMATEUR PLANT BREEDER

More new varieties and clones of common garden flowers are the results of patient breeding work by amateur horticulturists, often working in a small garden plot, than by nurserymen or professional plant breeders. This is more true of groups such as iris, lily, hemerocallis, narcissus, peony, and garden perennials than of shrubs, florist crops, or garden annuals.

The development of new clones and strains is a fascinating hobby. It does require a certain amount of "know-how" and careful record-keeping. The beginner is invited to consult the two books listed below, and written to provide back-ground and basic information on breeding techniques:

Beaty, J. Y. Plant breeding for everyone. 102 pp. Chas. T. Branford Co., Boston, Mass. 1954.

Lawrence, W. J. C. Practical plant breeding. Ed. 3. 165 pp. The Macmillan Co., New York, 1951.

Of the two authors, Lawrence is a geneticist who has devoted a lifetime to the breeding of ornamentals in Great Britain, while Beaty who once was associated with Burbank, has, for the most part, been an editor and writer of non-scientific literature.

A NEW BOOK ON CHRYSANTHEMUMS recently published in England, provides chapters on the history and cultivation of the genus in Japan, culture in Britain, and variety classification, production of new clones from seed, and pests and diseases. At the end is provided rules for exhibitors, and judging standards. The book is:

Chrysanthemums for garden and exhibition. By John Woolman. 112 pp. and over 50 photographs. W. H. Collingridge Ltd., London and New York. 1953.

Some Sources of Plant Misnomers

Paul Arnold
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The increasing interest of the American public in gardening for recreational rather than economic purposes has multiplied the number of misnamed plants in the trade. Unusual plants from the homes, gardens, and greenhouses of amateur horticulturists have been taken up for propagation by commercial nurseries along with their sometimes incorrect names.

Amateurs in America, often unable to obtain curious plants from domestic sources, have been importing plants and seeds, frequently obtaining them from other amateurs abroad. The botanical innocence on both sides of these transactions has added to the confusion of names as these plants, with their wrong labels, find their way into the trade. In other cases, the amateur growers themselves turn "professional" and market plants under misnomers or synonyms familiar to the grower but unknown in botanical literature.

Amateur plant societies have sprung up and many of them undertake the publication of journals. These amateur periodicals are mainly concerned with the personalities, the social activities, and the horticultural experiences of the members. In addition they give amateur descriptions of plants and sometimes publish names that are highly questionable and often inaccurate. The editors in some cases have not been exposed to the disciplines of a science nor are they well-enough acquainted themselves with the identification and nomenclature of plants to correct the mistakes of the amateur authors who contribute to the publications. The amateur editor, like any other amateur, is likely to accept as an authority anybody, especially an assertive individual, who appears to know more on a particular subject than the amateur does. The plant society publications do not pay for contributions but depend on the good-will and generosity of the authors, and consequently the editors are likely to let the latter have their own way in questionable cases.

Authors and editors of amateur plant society publications seldom avail themselves of the advice and services of technically competent referees. The situation is not improved by the fact that currently available reference works deal only with the plants that were most frequently found in homes during the recent decades. There is a marked scarcity of reference material covering a large number

of plants that were not in the trade twenty years ago. Very little authoritative information is readily available on a number of unusual plants that have been moving into homes from the jungles and the conservatories in these days of picture windows, air-conditioning, home-humidifiers, and fluorescent lighting. Particularly in the case of the Gesneriaceæ, which are extremely popular as houseplants today, there are no reliable reference works that mention more than a few species or adequately deal with the few that are mentioned.

It is apparent that many readers, not only amateurs but nurserymen and dealers in plants and seeds, accept as unquestionable authentic anything that they see in print. When they have once accepted a name in that fashion, and later learn of another name for the same plant, they incline to preserve the first-known name as authentic because of its familiarity. Amateurs tend to disregard the newly encountered name even though it may be authoritative, and dealers sometimes resist the need for corrections because they dislike changing their catalogues or admitting to the trade that an error has been published. In such manner, the incorrect names are perpetuated instead of being discarded in favor of valid names.

The sensational advertising copy of irresponsible nurserymen, predatory dealers, and mail-order distributors of garden materials further confounds the problem. Some of our misnomers of today can be traced to the sales-promotion activities of European nurserymen more than a century ago. Our modern hucksters, however, by the use of modern methods, have magnified these ancient tendencies to "gild the lily" with fancy names. Their efforts at confusion and error are aided by the mass-market media of the Sunday newspaper supplement, the third-class mail solicitation, the use of natural (and unnatural) color advertisements in periodicals of national circulation aimed at housewives, and even by the radio and television.

Usual Sources for Misnomers

Some of the usual ways in which misnomers for cultivated plants occur are the following:

1. Perpetuation and multiplication of misnomers by the propagation and distribution of misnamed plants. Growers guilty of this practice often are innocently in error. When they stubbornly refuse to discard the misnomer for the correct name, cited on good authority, the innocence begins to evaporate.

2. The assigning of superfluous names to plants that may already have a valid name, perhaps unknown to the distributor. Well-intentioned growers sometimes fall into this error, either through ignorance or because sloth prevents them from consulting plant-identification sources. These growers show the same irresponsibility as the culprit whose defense is, "I didn't know the gun was loaded."

3. The abbreviation, contracting, misspelling, or nicknaming of clones. Abbreviating and contracting plant names are practices followed by individuals who are careless and heedless of the fact that new owners of the plants probably do not know the correct names and cannot reconstruct them from the abbreviation nor correct them from the misspelled labels. When Latin endings are deliberately added to cultivar names to impress buyers, the bastardizing of plant names which results is willful rather than careless.

4. The naming, reproduction, and distribution of plants which are scarcely different from existing varieties or clones already in the trade. The Saintpaulia market is especially infested at the present time with misnomers of this type. The determined efforts of a competent plant nomenclature and description committee, working within each plant society of recognized stature may be necessary to clear up the confusion that exists. Such national or even international activity, if properly publicized, would also tend to prevent the creation of new misnomers of this type.

5. The distribution of seed or seedlings, under the name of the seed-bearing parent, from open-pollinated plants or plants known to be variable from seed.

6. The use of vernacular names that have sales appeal as a substitute for species names, generic names, or accepted cultivar names of long standing. This abuse has recently reached a pinnacle with the granting of trade mark protection by the U. S. Patent Office to coined names for species and cultivars that already possessed accepted botanical names of long standing.

Orthographic and Typographic Sources

To this list of "usual" sources for plant misnomers might be added another one-bad penmanship. This is certainly not a new source, but its full contribution to the current confusion may not have been appreciated. In a systematic endeavor to clear up some of the confusion in the nomenclature of currently available Achimenes clones, a considerable number of misnomers have been brought to light. Several of these strange synonyms are obviously the result of well-intentioned attempts to decipher illegible plant labels. Possibly Achimenes cv. 'Francois Cardinaux' of Regel (1852) was changed to 'Francois Cardinalis' in this way by someone unfamiliar with French word endings. How else can one explain the association of "cardinalis" with a lavender-colored flower? The error is important when it is noted that only one out of seventeen American and foreign catalogues that listed the cultivar in 1953-1954 spelled it correctly.

The introduction of variant names as the result of typographical errors is a familiar corollary. Troublesome as these misnomers are, they usually are simple substitutions of one letter for another, or transpositions of letters. The correct name in most cases is not difficult to ascertain. The variants 'Jauregnia' and 'Jaureguia'

used as synonyms of Achimenes longiflora var. alba are examples." "Index Kewensis" gives Achimenes comifera on one page, A. cornifera on another, and A. conifera on still another.

More serious, and more difficult to identify and to correct, are entirely new names that can be evolved from scribbled plant labels. This difficulty is especially apparent in the case of writers whose letters "m," "n," "u," and "v" are almost indistinguishable. Achimenes cv. 'Sharon,' which suddenly appeared in the list of a California dealer in 1953, had to be flowered before it could be identified as the well-known clone 'Charm.' In the same way Achimenes cv. 'Olmster' was identified as the cultivar 'Venusta,' Achimenes cv. 'Iwor McLoud' which was listed by a Mississippi grower during the past several years, was a puzzler for a long time until its unusual (for an Achimenes) Scottish name was identified as the product of uninspired reading of bad penmanship representing the Achimenes cultivar name 'Stormcloud,' a synonym for Achimenes mexicana (Scheeria Mexicana Regel).

Still another vagary of penmanship responsible for variant names, though of a nature different from simple illegibility, is the tendency to omit letters, particularly ligatures, to make the writing easier. Merely a cursory study of the literature since 1851 disclosed the following idfferent spellings for the Achimenes cultivar name 'Margaritæ:' Margaret, Margaretta, Margarettæ, Margarita Margueriete, Margarite.

Obviously, cases of misnamed plants could be avoided if the amateur and the professional alike, in making out lists and plant labels, would follow the advice of the postal authorities: "Print, don't write!"

PYRACANTHA COCCINEA AUREA

The Golden Firethorn, the deep-yellow-fruited form of Pyracantha, is not known to have been given any formal name until recently, when Ben Blackburn published for it the name Pyracantha coccinea Roemer f. aurea Blackburn in "Popular Gardening," vol. 4, p. 53 (Sept. 1953). This is a selection of var. Lalandei, of which the incorrect spelling "Lalandii" in much of the literature was pointed out by Mr. Blackburn. It is probably propagated as a clone. The Lalande Firethorn was introduced by M. Lalande, a nurseryman of Angers, in northwestern France, in the middle 1870's and its name was first published in 1882. Pyracantha coccinea aurea is becoming increasingly popular and is commended for its hardiness, especially when planted in south or east exposures in well-drained soil.

G. H. M. L.

Notes on Cultivated Labiates.

3. Origanum and relatives

Gordon P. De Wolf

From time to time the Bailey Hortorium receives requests relative to the identity of an "herb" imported under the name "Origano." This has been rather an embarrassing question since, till now, we have had no good material for study. Recently, however, Miss Dorcas Brigham, Village Hill Nursery, Williamsburg, Massachusetts, communicated to us dried flowering sprigs of two kinds which she had received from New York City. They were labelled respectively "Greek Origano" and "Italian Origano." With these in hand we have investigated the problem again, looking with care at the three genera Majorana, Origanum, and Amaracus.

In the past, the three genera mentioned have been much confused, probably due to George Bentham's treatment of the group in de Candolle's "Prodromus Systematis Naturalis...," volume 12, 1848, in which he treated all the species involved as members of the genus Origanum L. In an earlier study, the "Labiatarum Genera and Species" of 1832-36, he had held the three genera separate, but by 1848 he considered the character of the floral bracts to be of sufficient importance to override other, perhaps more subtle, differences. Today contrary views are held.

In 1897, John Briquet, in his treatment of the Labiatæ for Engler and Prantl's "Die Natürlichen Pflanzenfamilien," gave at considerable length his reasons for considering the three genera to be distinct. While he based his judgment primarily on the nature of the stamens, it may be noted that in the group of species now considered to constitute the genus Amaracus, the calyx is distinctly 2-lipped, in Origanum the calyx is equally 5-toothed, and in Majorana the calyx is entire-margined and slit to the base on one side.

Briquet's judgment has been upheld by several subsequent students. Since representatives of all three genera are in cultivation, and since they are readily distinguished from one another by constant characters, keys to the cultivated material are provided here and the plants are discussed at some length.

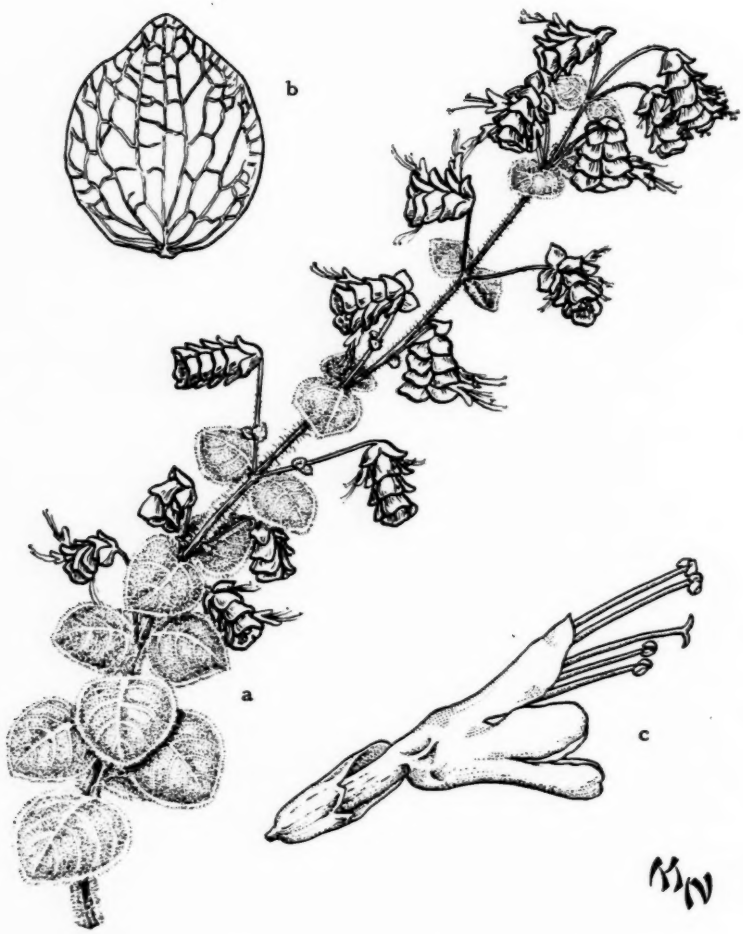


Fig. 19. Amaracus Dictamnus: a, inflorescence with axillary spikules x 3/4; b, bract x 5; c, flower x 5.

Calyx 2-lipped, in the cultivated species the margin sub-entire; floral bracts oval or sub-orbicular, to about 8 mm. long, generally blunt; spikules[1] borne on long, thin branches forming spreading, conical, paniculate inflorescence. (Fig. 20c). . . . . Amaracus Gleditch

Calyx equally 5-toothed; floral bracts ovate or lanceolate, about 5 mm. long, acute; spikules borne in small, compact, umbellate heads on long, leafy peduncles, forming a paniculate inflorescence (Fig. 23b). . . . . Origanum Linnæus

Calyx entire-margined, split to the base on one side; floral bracts ovate or sub-orbicular, about 4 mm. long; spikules borne as in Origanum (Fig. 24b). . . . . Majorana Moench

The name Amaracus (Latin for marjoram) was published by Matthias Lobelius in his "Icones stirpium seu plantarum..." published in Antwerp, Belgium, in 1591, for the plant called by Linnæus Origanum Marjorana, and which we now know as Majorana hortensis. Being a pre-Linnæan name (published before 1753), and not having been taken up by Linnæus, its usage in this instance has no bearing on post-Linnæan nomenclature. Consequently, the first valid use of Amaracus as a generic name was by Johann Gottlieb Gleditch, Professor of Botany at Berlin, in his "Systema plantarum a staminum situ" of 1764. Subsequently, this name was taken up by Konrad Moench, Professor at Marburg, in the "Supplementum" published in 1802 to his "Methodus Plantas horti botanici et agri Marburgensis a staminum situ described:" In this work Moench described one species, A. tomentosus, which was the Origanum Dictamnus of Linnæus. While Moench's species name is not valid, being a synonym of O. Dictamnus, his use and description of the generic name Amaracus is valid and legitimate.

George Bentham, in his "Labiatarum genera et species" of 1832-36, accepted the genus Amaracus and included in it 2 species, viz., A. Dictamnus (L.) Bentham (synonym, A. tomentosa Moench) and A. Tournefortii (Solander ex Aiton) Bentham. Bentham did not, however, recognize that the Origanum sipyleum of Linnæus also belonged here, nor did he recognize that the O. x hybridum of Philip Miller (recorded as a hybrid between O. Dictamnus and O. sipyleum) in the eighth edition of "The Gardeners Dictionary" was distinct from O. sipyleum. As noted above, Bentham subsequently reduced Amaracus to the rank of a section in Origanum, while Briquet, in 1897, again affirmed the distinctness of the group and added to it a number of additional species. Recent students of the flora of southeastern Europe and the eastern Mediterranean region have upheld Briquet's contention as to the distinctness of the group.

[1]Spikule - a small, spikelike portion of a compound inflorescence. As here used, the spikule is borne at the apex of an elongate branch of a paniculate inflorescence and is composed of a number of minute cymes, each subtended by a bract.

Key to Cultivated Species of Amaracus

1. Leaves orbicular or sub-orbicular, short-petiolate, more or less heavily white-woolly-pubescent; fertile bracts ovoid to orbicular, acute or blunt.
   2. Calyx 2-lipped, the lips indistinctly toothed; leaves to 2.5 cm. in diameter. (Fig. 19). . . . . A. Dictamnus
   2. Calyx 2-lipped, the lips distinctly toothed; leaves to 2 cm. in diameter. . . . . A. pulchellus
1. Leaves of the erect stems ovate or ovate-lanceolate, more or less pubescent; fertile bracts ovate to oval.
   3. Leaves of the erect stems to 18 mm. long, glabrous, fertile bracts to 5 mm. long (Fig. 21). . . . . A. sipyleus
   3. Leaves of the erect stems to 23 mm. long, pubescent fertile bracts 5-8 mm. long. (Fig. 20). . . . . A. hybridus

Amaracus Dictamnus (L.) Bentham is the Crete Dittany or Hop Marjoram (See: Baileya 2(1): 30-31). This is a tender sub-shrub native principally to the island of Crete. Its orbicular or sub-orbicular white-woolly leaves, which are said to be mottled with purple, are quite distinctive. The spikules of the paniculate inflorescence are about 15 mm. long, composed of 4 or more pairs of fertile bracts, each about 8 mm. long, frequently rather brightly colored.

Dittany is apparently rather tender and is probably not reliably hardy north of Washington, D.C. It propagates readily from cuttings taken during the summer, and these should be carried through the winter in a cold-frame or a cool greenhouse. Plants will probably do best in a sandy soil, with as much light as possible. It blossoms in the Spring.

Amaracus x hybridus (Miller) A. K. Jackson (A. Dictamnus x A. sipyleus) has been much confused in the past with A. sipyleus, but may be distinguished from that species by its larger and pubescent stem-leaves, and larger fertile bracts. There is no evidence, in material available for study, of the stellate hairs referred to by Lawrence (Baileya 2: 31). Philip Miller records the origin of this plant by hybridization in the garden of one John Browning, in Lincoln's Inn, London. This, like A. sipyleus, is a decumbent half-shrub with erect flowering branches, the lower leaves roundish and pubescent, the leaves of the erect stems larger, ovate, and pubescent. The broadly paniculate inflorescence is produced in late summer and autumn. It will probably respond to culture similar to that recommended for A. Dictamnus.

Amaracus pulchellus (Boissier) Briquet is a species of which we have seen no material. Judging from the description, it must be very similar to A. Dictamnus, differing in the smaller leaves and definitely toothed calyx.

About all that can be said about A. sipyleus (L.) Rafinesque is that it is a smaller, glabrous "edition" of A. x hybridus. Records at

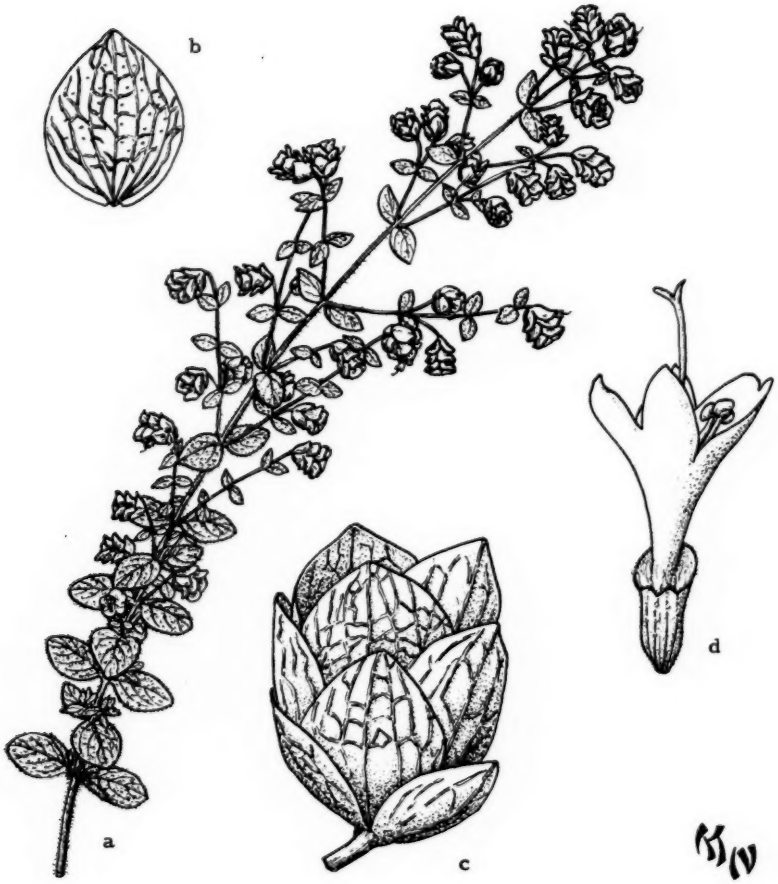


Fig. 20. Amaracus hybridus: a, inflorescence x 2/3; b, bract x 5; c, spikule x 5; d, flower x 5.

the Hortorium indicate that it is cultivated in California.

Origanum L. (said to be an ancient Greek name meaning "joy of mountains") Origano is the genus in which Linnæus included all of the plants known as Marjoram. As noted above, it has been frequently taken (as indeed it was by Linnæus) in too broad a sense, but is today generally restricted to those plants of this alliance with the calyx equally 5-toothed. There appear to be but two species cultivated, and while they are conveniently kept separate in all modern studies, the distinction between them does not seem to be great.

Origanum heracleoticum L. is Winter Sweet Marjoram or Pot Marjoram. The distinction between this species and the next seems to be that the fertile bracts of the former are abundantly covered with glands, while in O. vulgare the fertile bracts are glabrous, or only slightly glandular.

Origanum vulgare L. - Wild Marjoram, Pot Marjoram, Origano (at least in part) - is distinguished from Amaracus by being an erect, herbaceous perennial and by the calyx characters. It differs from Majorana in its somewhat more open spikules and larger bracts. The fertile bracts are lanceolate to elliptical, 4-5 mm. long, equalling or slightly longer than the calyx. This has become naturalized in several places in the northeastern United States.

Though several varieties have been named, only one is easily recognizable, besides the typical form, in the cultivated material that I have seen. This is the var. prismaticum Gaudin. It may be distinguished from typical O. vulgare as follows:

typical O. vulgare	var. prismaticum
spikules 10 - 12 mm. long, terete, or nearly so, the fertile bracts not strongly imbricate.	spikules 12 mm. long, more or less angular, the fertile bracts more or less strongly imbricate.

Marjoram is widely used as a culinary herb. In addition, the flowers are much favored by bees and are said to yield a honey of good quality.

As was indicated at the beginning, the problem of "what is Origano?" is constantly arising. Both of the plants submitted by Miss Brigham appear to be referable to Origanum vulgare, though superficially very different. The "Italian Origano" is referable to the typical variant of the species, characterized by its short spikules. The "Greek Origano" seems to be referable to var. prismaticum and has the long, angular spikules and imbricate fertile bracts of that variety.

Finally, one comes to the identity of the Annual or Sweet Marjorams, members of the genus Marjorana. This genus, and Origanum, were discussed by Lawrence in an article in "The American Herb Grower" (June-July, 1948: 5), but it is not out of place to review the situation again and provide some additional data.

Fig. 21. Amaracus sipyleus: a, inflorescence x 1/3; b, bract x 5; c, spikule x 5.

The name Majorana was used by Caspar Bauhin, in the "Pinax theatri botanici..." of 1623, for the plant we know as M. hortensis and again by Alberto Haller in his edition (the third) of Heinrich Bernard Ruppius' "Flora Jenensis" of 1745. It was used also in 1665 in "A catalogue of the Plants growing in the Royal Garden at Paris" for the plant now known as M. Maru.

Linnæus referred all the species of Majorana to Origanum, so the first post-Linnæan, and valid, use of the name is by Moench in his "Methodus Plantas horti botanici et agri Marburgensis a staminum situ describendi" of 1794. As with Amaracus, the genus was accepted by Bentham in the "Labiatarum Genera et Species" but reduced to a section of Origanum in the treatment in de Candolle's "Prodromus" of 1848, and finally resurrected again by Briquet in the treatment in "Die Natürlichen Pflanzenfamilien" in 1897.

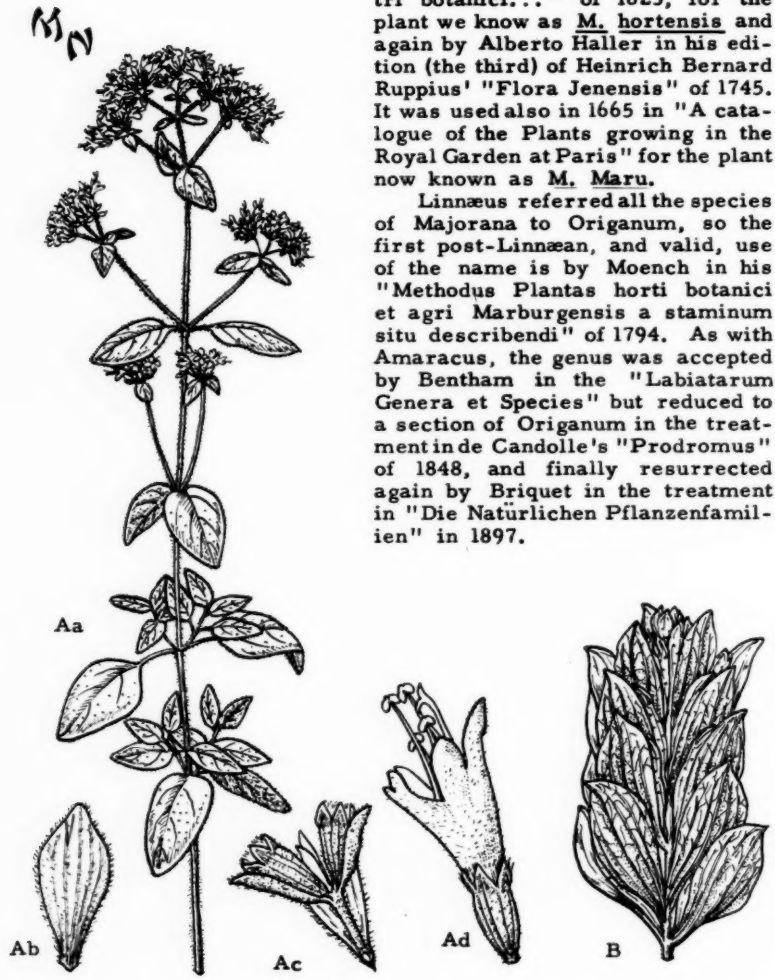


Fig. 22. A. Origanum vulgare: Aa, Flowering stem and inflorescence x 3/4; Ab, bract x 5; Ac, spikule x 5; Ad, flower x 5. B, Origanum vulgare var. prismaticum, spikule x 5.

There are about 6 species in the genus, native to the eastern Mediterranean region, but only one, M. hortensis Moench, is cultivated to any extent in this country. This is the Sweet, or Annual, Marjoram. It is characterized by its oval or ovate petiolate leaves, which may be as much as 3.5 cm. long, but more commonly 1 - 2 cm. The spikules (which get to be 1 cm. long) are arranged in a sort of loose raceme at the top of the plant. The fertile bracts are about 3 mm. long and ovoid, with a rounded, not acute tip.

In its native land Sweet Marjoram is a perennial, but it is generally treated in this country as an annual, since it is quite tender. It comes readily from seed and flowers the first season. It is widely used as a culinary herb.

Majorana Onites (L.) Bentham is occasionally offered in the trade - or at least the name is used. Material received under this name has proved to be M. hortensis. The

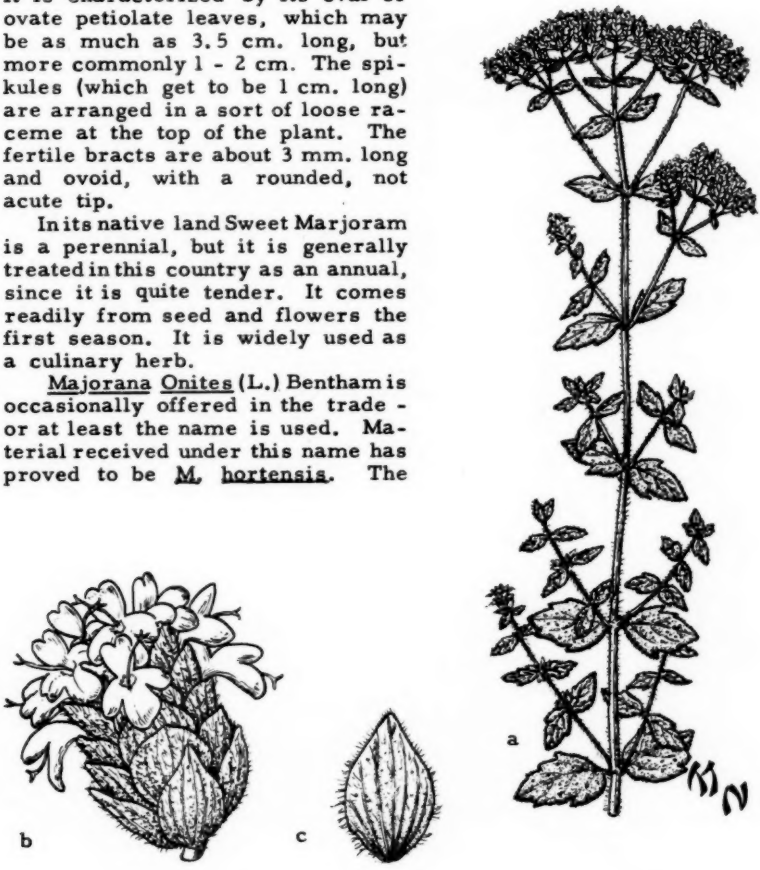


Fig. 23. Origanum Onites: a, flowering stem and inflorescence x 2/3; b, spikule x 5; c, bract x 5.

species differs from M. hortensis in its sessile, ovate leaves, in having the spikules formed into a corymbiform inflorescence, and in its acute fertile bracts.

Miss Brigham's specimens and experience with origano are among recent contributions which have helped immeasurably with our understanding of the problem. A subsequent article dealing with the genus Lavandula is the result of cooperation of another enthusiastic horticulturalist. The effectiveness of the Hortorium and this periodical depends to a large extent upon just such cooperation. The necessary literature and the specimens, which are frequently so difficult for the horticulturalist to consult, are here; what often is lacking are the extensive suites of collections of fancy-named clones and other garden variants so essential to the solution of the problem. Growers can also contribute much by reporting what is and is not hardy in their respective regions; an aspect of garden culture perhaps better known for woody than herbaceous plants.

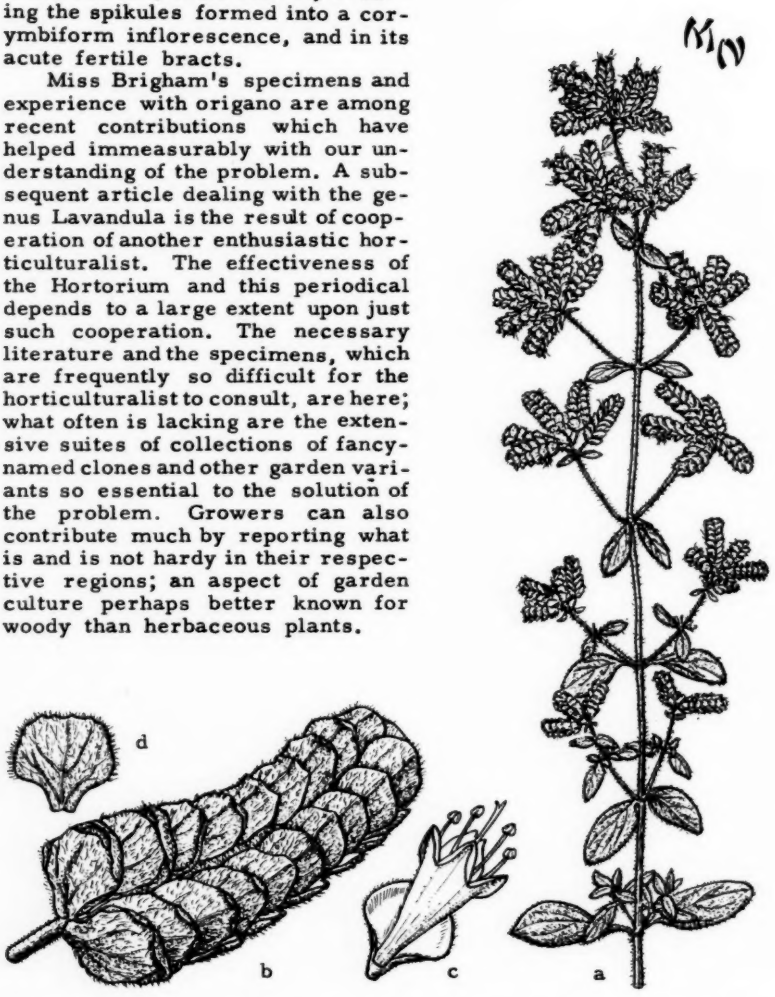


Fig. 24. Majorana hortensis: a, flowering stem and inflorescence x 3/4; b, spikule x 5; c, flower x 5; d, bract x 5.

Edward Augustus Bowles

1865-1954

The British Commonwealth, more than any other region, is renowned for its many and outstanding horticulturists. For decades the dean and peer of British plantsmen, and of writers on British garden plants, has been E. A. Bowles. Word of his death on May 7th comes to the Hortorium from William T. Stearn, who wrote on May 12:

"He died at mid-day last Friday (May 7) at Myddelton House, Enfield, where he had been born nearly ninety years ago, on 14 May 1865. The funeral took place yesterday (May 11) at Forty Hill Church nearby. He had been in failing health for some time but his strength of will so triumphed over his bodily weakness that he attended the Royal Horticultural Society's Show on April 27 and presided over the meetings of the Library and Scientific Committees. The exertion was, however, at last too much for him. He collapsed next day and never got up again. I went to see him at his request on Sunday (2 May) and spent most of the day at his bedside. His mind was completely lucid and our talk ranged over a wide variety of subjects but he was weak and tired quickly.

When I went to see him again on the 4th it was plain that the end of his long, active and well-spent life could not be far off. His breathing had become very laboured and his mind clouded; he recognized none of us and spoke incoherently. I stayed most of the day beside him to relieve his staff, and because I knew I could not be with him much more. For nearly twenty-five years he had been my friend, and in some ways like a father to me, and now the time had come to say good-bye.... He was a great man and a good man of a type which the modern world can produce but rarely. Here, we shall miss him greatly."

It was my privilege to lunch with Mr. Bowles on one occasion at Myddelton House, in the autumn of 1950, and to revisit him again in the summer of 1951. At that time he was nearly blind [he had lost the sight of his right eye at the age of eight] and, while showing me his garden, would quickly and easily drop to both knees to read a label beside an autumn crocus - his head almost touching the ground. He knew the locations of his plants so well that blindness did not prevent his pointing with uncanny accuracy to particular rarities. His home was Victorian; large, high-ceilinged, paneled, and bedrooms with four-poster canopied beds. For the most part its decor had not changed for well over a half-century. Many

scores of framed water-color portraits of garden species and varieties - especially of bulbous sorts - together with charming landscapes, all painted by Bowles in an earlier era, covered walls and staircases. Everything was of the 19th century - oil lamps, furniture, and bell ropes; the house was provided with running water but no electric or gas lighting, and no telephone; only the abundant horticultural and botanical literature was modern, and not all of that, for he possessed the 16th and 17th century classical volumes of Tabernaemontanus, Clusius, Bauhin, the works of Linnæus ["Hortus Cliffortianus," "Genera Plantarum"] including a copy of "Species Plantarum" that had belonged successively to Lambert, Robert Brown, and J. D. Hooker, plus a complete set of Curtis' "Botanical Magazine," of Edwards "Botanical Register," classical monographs, and a large number of floras, the whole forming a library of exceptional utility and value to both gardener and horticulturist handling a wide range of cultivated plants, as Bowles did.

E. A. Bowles never married. His father left him a magnificent home and an estate to meet his needs. He studied theology and was graduated from Jesus College, Cambridge, but was never ordained. His shift of interest from a future as a social-worker, as an artist, or as an entomologist, to gardening was due to the influence of Canon Ellacombe - a clergyman of great repute also as a horticulturist in the late 19th century. In his middle years he travelled extensively, especially in southern Europe and all sides of the Mediterranean, collecting plant rarities and introducing them to cultivation. He was a keen observer of plants and a student of their literature, and he knew more kinds of cultivated plants and the history behind them than any other person of my acquaintance.

His activities in horticultural organizations were focused on the Royal Horticultural Society, where he served on the Scientific Committee for 52 years, was a trustee of the Lindley Library since 1907, a member of the Council since 1908, and of the Narcissus and Tulip Committee since 1911. He was awarded Britain's highest horticultural honor in 1916 - the Victoria Medal of Honor. Aside from horticulture, he was active in local civic organizations and church activities.

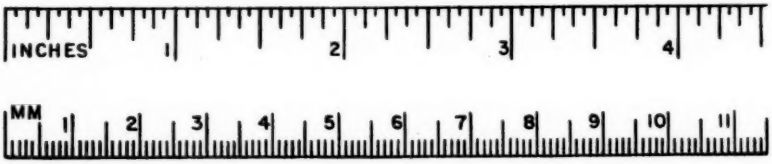
This is not the place to recount Bowles' many introductions of garden plants, nor to list his many contributions to periodicals. His first three books, "My Garden in Spring," "My Garden in Autumn and Winter," are a delightful, discursive, and entertaining record of the development of his garden up to 1914 and are full of valuable, if out-of-the-way information about plants. His "Handbook of the Narcissus" and a copy of his 1952 edition of "A handbook of Crocus and Colchicum for Gardeners" are ready references by my desk. His loss will be felt by horticulturists throughout the world, more consciously by some than others.

G. H. M. Lawrence

ABBREVIATIONS USED IN BAILEYA

[Excluding abbreviations of author's names following binomials etc.]

ann.	annual	dm.	decimeter	lf.	leaf
bien.	biennial	fl.	flower	lft.	leaflet
br.	branch	fls.	flowers	lvs.	leaves
brt.	branchlet	flt.	floret	mm.	millimeter
caps.	capsule	fr.	fruit	per.	perennial
cl.	clone	ft.	foot	segm.	segment
cm.	centimeter	hort.	horticultural	st.	stem
cv.	cultivar	in.	inch	sts.	stems
diam.	diameter	infl.	inflorescence	var.	variety

METRIC - ENGLISH EQUIVALENTS (approximate)

6 mm. - 1/4 in.	10 cm. - 4 in.	10 mm. - 1 cm.
12 mm. - 1/2 in.	1 dm. - 4 in.	10 cm. - 1 dm.
25 mm. - 1 in.	3 dm. - 1 ft.	10 dm. - 1 meter
2.5 cm. - 1 in.	10 dm. - 1 yd.	
5 cm. - 2 in.	1 m. - 39 in.